AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the above-captioned patent application:

Listing of Claims:

1. (Canceled)

2. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

aspirating fluid from said fluid supply;

dispensing aspirated fluid through said at least one dispense nozzle; and

effecting the relative velocity dispensed fluid by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one changing and modifying step results in at least one of a change and a modification to said variable fluid flow rate profile and in which ~~A method according to Claim 1, wherein~~ said relative velocity effecting ~~modifying profile~~ step includes the step of offsetting a reference position of said pump motor in order to shift at least a portion of said variable fluid flow rate profile.

3. (Currently Amended) A method according to Claim 2, wherein said variable speed pump produces a decrease in ~~motor~~ pump piston velocity at the end of said dispensing step, in which said offsetting step offsets said reference position to cause an increase in fluid dispense velocity at the end of said dispensing step.

4. (Original) A method according to Claim 2, wherein said variable speed pump produces a sinusoidal fluid flow rate profile wherein the fluid flow rate becomes zero at the end of said dispensing step, wherein said offsetting step is applied to offset the end of said profile to provide a fluid flow rate at the end of said dispensing step.

5. (Original) A method according to Claim 4, wherein a predetermined volume of fluid is dispensed onto a target, said method including the additional step of pre-dispensing residual fluid remaining from said dispensing step onto one of said target and a separate target prior to a subsequent aspirating and dispensing step.

6. (Original) A method according to Claim 5, including the step of increasing the speed of said motor during at least said pre-dispensing step in order to increase the dispense velocity of said fluid.

7. (Canceled)

8. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

aspirating fluid from said fluid supply;

dispensing aspirated fluid through said at least one dispense nozzle; and

effecting the relative velocity dispensed fluid by at least one of changing and modifying the variable fluid rate flow using said pump motor during ~~at least one of~~ said ~~aspirating and~~ dispensing step ~~steps so as to effect the relative velocity of dispensed fluid~~ wherein said at least one changing and modifying step results in at least one of a

change and a modification to said variable fluid flow rate profile ~~A method according to Claim 7~~, wherein said ~~profile modifying~~ relative velocity effecting step includes the step of applying a variation in motor speed according to a profile having a shape which is inverted relative to said variable fluid flow rate profile.

9. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

aspirating fluid from said fluid supply;

dispensing aspirated fluid through said at least one dispense nozzle; and

effecting the relative velocity dispensed fluid by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one changing and modifying step results in at least one of a change and a modification to said variable fluid flow rate profile and in which ~~A method according to Claim 7~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the beginning and end of said dispensing steps produce a fluid flow rate of zero from the dispense nozzle, said ~~modifying~~ relative velocity effecting step including the step of increasing the speed of the pump motor along portions of said profile in order to increase the fluid flow rate.

10. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile

for a constant motor speed, said method including the steps of:

aspirating fluid from said fluid supply;

dispensing aspirated fluid through said at least one dispense nozzle; and

effecting the relative velocity dispensed fluid by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one changing and modifying step results in at least one of a change and a modification to said variable fluid flow rate profile and in which ~~A method according to Claim 7~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile, said ~~profile modifying~~ relative velocity effecting step including the step of applying a variation in motor speed to said pump over said dispensing step which includes a shape which is essentially inverted relative to said fluid flow rate profile to produce a substantially constant dispense velocity during dispensing step.

11. (Currently Amended) A method for improving the dispensability of a metering system, said metering system including at least one dispense nozzle, a fluid supply, and at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

aspirating fluid from said fluid supply;

dispensing aspirated fluid through said at least one dispense nozzle; and

effecting the relative velocity dispensed fluid by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one changing and modifying step results in at least one of a change and a modification to said variable fluid flow rate profile ~~A method according to Claim 7~~, wherein said variable speed pump produces a fluid flow rate profile in which the fluid flow rate during the dispensing step is variable and characterized by an initially low fluid flow rate relative to the remaining portions of said profile, said ~~profile~~

~~modifying~~ relative velocity effecting step including the step of increasing the speed of said pump motor during at least the beginning of said dispensing step so as to increase the fluid flow rate sufficiently to prevent perfusion of dispensed fluid.

12. (Canceled)

13. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

a. aspirating fluid from said fluid supply using a metering tip attached to a proboscis;

b. dispensing aspirated fluid through said metering tip into a reaction vessel; and

c. effecting the relative velocity fluid dispensed by said metering system by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one of said changing and modifying step results in at least one change and modification to said variable fluid flow rate profile ~~A method according to Claim 12~~, wherein said relative velocity effecting ~~modifying profile~~ step includes the step of offsetting a reference position of said pump motor in order to shift at least a portion of said fluid flow rate profile.

14. (Currently Amended) A method according to Claim 13, wherein said variable speed pump produces a decrease in ~~motor~~ pump piston velocity at the end of said dispensing step, in which said offsetting step offsets said reference position to cause an increase in fluid dispense velocity at the end of said dispensing step.

15. (Original) A method according to Claim 13, wherein said variable speed pump produces a sinusoidal fluid flow rate profile wherein the fluid flow rate becomes zero at the end of said dispensing step, wherein said offsetting step is applied to offset the end of said profile to provide a non-zero fluid flow rate at the end of said dispensing step.

16. (Original) A method according to Claim 15, wherein a predetermined volume of fluid is dispensed into a first reaction vessel, said method including the additional step of pre-dispensing residual fluid remaining from said dispensing step onto one of said first reaction vessel and a second reaction vessel prior to a subsequent aspirating and dispensing step therein.

17. (Original) A method according to Claim 16, including the step of increasing the speed of said motor during at least said pre-dispensing step in order to increase the dispense velocity of said fluid.

18. (Canceled)

19. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

a. aspirating fluid from said fluid supply using a metering tip attached to a proboscis;

b. dispensing aspirated fluid through said metering tip into a reaction vessel; and

c. effecting the relative velocity fluid dispensed by said metering system by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one of said changing and modifying step results in at least one change and modification to said variable fluid flow rate profile ~~A method according to Claim 18,~~ wherein said relative velocity effecting ~~profile modifying~~ step includes the step of applying a variation in motor speed according to a profile having a shape which is inverted relative to said fluid flow rate profile.

20. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

a) aspirating fluid from said fluid supply using a metering tip attached to a proboscis;

b) dispensing aspirated fluid through said metering tip into a reaction vessel; and

c) effecting the relative velocity fluid dispensed by said metering system by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one of said changing and modifying step results in at least one change and modification to said variable fluid flow rate profile ~~A method according to Claim 18~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the beginning and end of said dispensing steps produces a fluid flow rate of zero from the metering tip, said ~~modifying~~ relative velocity effecting step including the step of increasing the speed of the pump motor along portions of said profile in order to increase the fluid flow rate.

21. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

a) aspirating fluid from said fluid supply using a metering tip attached to a proboscis;

b) dispensing aspirated fluid through said metering tip into a reaction vessel; and

c) effecting the relative velocity fluid dispensed by said metering system by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one of said changing and modifying step results in at least one change and modification to said variable fluid flow rate profile ~~A method according to Claim 18~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile, said ~~profile modifying~~ relative velocity effecting step including the step of applying a variation in motor speed to said pump over said dispensing step which includes a shape which is essentially inverted relative to said fluid flow rate profile to produce a substantially constant dispense velocity during dispensing step from said metering tip.

22. (Currently Amended) A method for improving the dispensability of a metering system used in a clinical analyzer, said metering system including at least one metering tip, a fluid supply, and at least one pump fluidly interconnecting said at least one metering tip and said fluid supply, said pump including a pump motor and having a mechanism which produces a variable fluid flow rate profile for a constant motor speed, said method including the steps of:

a) aspirating fluid from said fluid supply using a metering tip attached to a proboscis;

b) dispensing aspirated fluid through said metering tip into a reaction vessel; and

c) effecting the relative velocity of fluid dispensed by said metering system by at least one of changing and modifying the variable fluid rate flow using said pump motor during said dispensing step wherein said at least one of said changing and modifying step results in at least one change and modification to said variable fluid flow rate profile ~~A method according to Claim 18,~~ wherein said variable speed pump produces a fluid flow rate profile in which the fluid flow rate during the dispensing step is variable and characterized by an initially low fluid flow rate relative to the remaining portions of said profile, said ~~profile modifying~~ relative velocity effecting step including the step of increasing the speed of said pump motor during at least the beginning of said dispensing step so as to increase the fluid flow rate sufficiently to prevent perfusion of dispensed fluid relative to said metering tip.

23. (Canceled)

24. (Currently Amended) A metering system comprising:

a) at least one dispense nozzle;

b) a fluid supply, and

c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by at least one of changing and modifying the fluid flow rate using said motor during at

least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile A ~~metering system according to Claim 23~~, wherein said ~~modifying profile~~ relative velocity effecting means includes means for offsetting a reference position of said pump motor in order to shift at least a portion of said fluid flow rate profile.

25. (Currently Amended) A metering system according to Claim 24, wherein said variable speed pump produces a decrease in ~~motor~~ pump piston velocity at the end of said dispensing step, wherein said reference position can be offset sufficiently to cause a relative increase in fluid dispense velocity at the end of a dispense phase.

26. (Original) A metering system according to Claim 24, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the fluid flow rate becomes zero at the end of a dispense phase, wherein said offsetting means is applied to offset the end of said profile to provide a non-zero fluid flow rate at the end of said dispense phase.

27. (Original) A metering system according to Claim 26, wherein a predetermined volume of fluid is dispensed into a first target during the dispense phase and in which offsetting causes a residual volume of fluid remaining to complete the dispense phase of the cycle following a dispense phase requiring a pre-dispense phase in which the residual fluid volume is dispensed into one of the first and a separate second target prior to an aspiration phase.

28. (Currently Amended) A metering system according to Claim 27, wherein said ~~profile modifying~~ relative velocity effecting means includes means for increasing the speed of the pump motor during at least said pre-dispense phase in order to increase the dispense velocity of said fluid.

29. (Canceled)

30. (Currently Amended) A metering system comprising:

a) at least one dispense nozzle;

b) a fluid supply, and

c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by at least one of changing and modifying the fluid flow rate using said motor during at least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile ~~A metering system according to Claim 29~~, wherein said relative velocity effecting ~~profile modifying~~ means includes means for applying a variation in motor speed according to a profile having a shape which is substantially inverted relative to said fluid flow rate profile.

31. (Currently Amended) A metering system comprising:

a) at least one dispense nozzle;

b) a fluid supply, and

c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by at least one of changing and modifying the fluid flow rate using said motor during at

least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile ~~A metering system according to Claim 29~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the beginning and end of said dispensing steps produces a fluid flow rate of zero from the metering tip, said ~~profile modifying~~ relative velocity effecting means including means for increasing the speed of the pump motor along portions of said flow rate profile in order to increase the fluid flow rate.

32. (Currently Amended) A metering system comprising:

a) at least one dispense nozzle;

b) a fluid supply, and

c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by at least one of changing and modifying the fluid flow rate using said motor during at least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile ~~A metering system according to Claim 29~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile, said relative velocity effecting ~~profile modifying~~ means including means for applying a variation in motor speed to said pump during said dispense phase according to a motor speed profile having a shape which is essentially inverted relative to said fluid flow rate profile to produce a substantially constant dispense velocity during dispensing step.

33. (Currently Amended) A metering system comprising:

a) at least one dispense nozzle;

b) a fluid supply, and

c) at least one variable speed pump fluidly interconnecting said at least one dispense nozzle and said fluid supply, said at least one variable speed pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase, said system further including means for effecting the relative velocity of dispensed liquid through said at least one dispense nozzle using said pump motor by at least one of changing and modifying the fluid flow rate using said motor during at least one phase of said metering cycle and resulting in at least one of a change and modification to the variable fluid flow rate profile ~~A metering system according to Claim 29~~, wherein said variable speed pump produces a fluid flow rate profile in which the fluid flow rate during the dispensing phase is variable and characterized by an initially low fluid flow rate relative to the remaining portions of said profile, said relative velocity effecting ~~profile modifying~~ means including means for increasing the speed of said pump motor during at least the beginning of said dispensing step so as to increase the fluid flow rate sufficiently to prevent perfusion of dispensed fluid relative to said dispense nozzle.

34. (Canceled)

35. (Currently Amended) A metering system according to Claim 24 ~~23~~, wherein said system is used in a clinical analyzer.

36. (Canceled)

37. (Currently Amended) A clinical analyzer comprising:

a housing;

a metering system disposed within said housing, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to at least one of change and modify the fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile ~~An analyzer according to Claim 36~~, wherein said ~~modifying profile~~ relative velocity effecting means includes means for offsetting a reference position of said pump motor in order to shift at least a portion of said fluid flow rate profile.

38. (Currently Amended) A clinical analyzer according to Claim 37, wherein said variable speed pump produces a decrease in ~~motor~~ pump piston velocity at the end of said dispensing step, wherein said reference position can be offset sufficiently to cause a relative increase in fluid dispense velocity at the end of a dispense phase.

39. (Original) A clinical analyzer according to Claim 37, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the fluid flow rate becomes zero at the end of a dispense phase, wherein said offsetting means is applied to offset the end of said profile to provide a non-zero fluid flow rate at the end of said dispense phase.

40. (Currently Amended) A clinical analyzer according to Claim 39, wherein a predetermined volume of fluid is dispensed from said metering tip into a first ~~target~~ reaction vessel during the dispense phase and in which offsetting causes a residual volume of fluid remaining to complete the dispense phase of the cycle following a dispense phase requiring a pre-dispense phase in which the residual fluid volume is dispensed into one of the first and a separate second ~~target~~ reaction vessel housed in said analyzer prior to an aspiration phase.

41. (Currently Amended) A clinical analyzer according to Claim 40, wherein said relative velocity effecting ~~profile modifying~~ means includes means for increasing the speed of the pump motor during at least said pre-dispense phase in order to increase the dispense velocity of said fluid.

42. (Canceled)

43. (Currently Amended) A clinical analyzer comprising:

a housing;

a metering system disposed within said housing, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to at least one of change and modify the fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile ~~A clinical analyzer~~

~~according to Claim 42~~, wherein said ~~profile modifying~~ relative velocity effecting means includes means for applying a variation in motor speed according to a profile having a shape which is substantially inverted relative to said fluid flow rate profile.

44. (Currently Amended) A clinical analyzer comprising:

a housing;

a metering system disposed within said housing, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to at least one of change and modify the fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile ~~A clinical analyzer according to Claim 42~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile in which the beginning and end of said dispensing steps produces a fluid flow rate of zero from the metering tip, said ~~profile modifying~~ relative velocity effecting means including means for increasing the speed of the pump motor along portions of said flow rate profile in order to increase the fluid flow rate.

45. (Currently Amended) A clinical analyzer comprising:

a housing;

a metering system disposed within said housing, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to at least one of change and modify the fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile ~~A clinical analyzer according to Claim 42~~, wherein said variable speed pump produces a sinusoidal fluid flow rate profile, said ~~profile modifying~~ relative velocity effecting means including means for applying a variation in motor speed to said pump during said dispense phase according to a motor speed profile having a shape which is essentially inverted relative to said fluid flow rate profile to produce a substantially constant dispense velocity during dispensing step.

46. (Currently Amended) A clinical analyzer comprising:

a housing;

a metering system disposed within said housing, said metering system including:

i) a proboscis retaining at least one of a plurality of metering tips;

ii) a fluid supply, and

iii) at least one pump fluidly interconnecting said at least one proboscis and retained metering tip and said fluid supply, said pump including a motor and mechanical means for producing a variable fluid flow rate profile for a constant motor speed during at least one phase of a metering cycle including a dispensing phase,

said analyzer further including means for effecting the relative velocity of fluid dispensed from said metering tip to at least one of change and modify the fluid flow rate of said pump during at least one phase of said metering cycle and thereby at least one of changing and modifying the variable fluid flow rate profile ~~A clinical analyzer~~

~~according to Claim 42~~, wherein said variable speed pump produces a fluid flow rate profile in which the fluid flow rate during the dispensing phase is variable and characterized by an initially low fluid flow rate relative to the remaining portions of said profile, said relative velocity effecting ~~profile modifying~~ means including means for increasing the speed of said pump motor during at least the beginning of said dispensing step so as to increase the fluid flow rate sufficiently to prevent perfusion of dispensed fluid relative to said dispense nozzle.

47. (Canceled)

48. (Canceled)

49. (Canceled)